

Implementation Plan

Project 2022-01 Reporting ACE Definition and Associated Terms

Definitions of Terms included in the *Glossary of Terms used in NERC Reliability Standards*

Proposed New, Modified, and Retired Terms in the NERC Glossary

This section includes all newly defined or revised terms proposed for inclusion in the *Glossary of Terms used in NERC Reliability Standards* (“*Glossary*”), as well as current NERC *Glossary* terms proposed for retirement. The new and revised definitions are included in **Appendix**.

No changes to the Reliability Standards in which these terms are used are proposed as part of Project 2022-01.

Proposed New Definition(s):

- ACE Diversity Interchange
- Inadvertent Interchange Management (I_{IM})

Proposed Modified Definition(s):

- Actual Net Interchange (NI_A)
- Area Control Error (ACE)
- Automatic Generation Control (AGC)
- Automatic Time Error Correction (ATEC)
- Balancing Authority Area (BAA)
- Balancing Contingency Event (BCE)
- Control Performance Standard (CPS)

- Disturbance
- Dynamic Interchange Schedule or Dynamic Schedule
- Frequency Bias Setting (FBS)
- Frequency Error
- Implemented Interchange
- Inadvertent Interchange
- Interchange Meter Error $-(I_{ME})$
- Operating Reserve – Spinning
- Operating Reserve – Supplemental
- Overlap Regulation Service
- Pseudo-Tie
- Ramp Rate or Ramp
- Regulation Service
- Reportable Balancing Contingency Event (RBCE)
- Reporting Area Control Error (Reporting ACE)
- Reserve Sharing Group (RSG)
- Reserve Sharing Group Reporting ACE
- Scheduled Frequency
- Scheduled Net Interchange (NIs)
- Supplemental Regulation Service
- Tie Line Bias (TLB)
- Time Error (TE)

- Time Error Correction (TEC)

Proposed Retirement(s) of Approved Definition(s):

- Disturbance Control Standard
- Net Interchange Schedule
- Net Scheduled Interchange
- Reportable Disturbance

Background

Project 2022-01 Reporting Ace Definition and Associated Terms was initiated in February 2022 to address an issue, identified by the Resources Subcommittee of the NERC Reliability and Security Technical Committee, regarding the current definition of the NERC defined term Reporting ACE. Specifically, the Resources Subcommittee identified a conflict in the current definition of Reporting ACE with the Western Interconnection’s Automatic Time Error Correction process. The Resources Subcommittee recommended making the Automatic Time Error Correction (ATEC) term generic to allow all Interconnections to implement an automated time error correction process and also revising related defined terms for consistency and clarity.

General Considerations

The Project 2022-01 standard drafting team has proposed one new definition for inclusion in the NERC *Glossary*, revisions to several defined terms, and the retirement of several approved terms that are no longer used in any NERC Reliability Standard or defined term or would no longer be used in any defined term following approval of other revised definitions that currently use those terms. Significant revisions are proposed to the definitions of several terms, such as Area Control Error and Reporting Area Control Error – Reporting ACE, that may require entities to update their documentation and related compliance materials. Other revisions are clarifying in nature, such as the proposed revisions to the definition for the term Time Error (TE). The standard drafting team also proposes revisions to the definitions of certain terms so that less-used defined terms used within those terms may be retired. For ease of implementation and to avoid administrative burden, a twelve month implementation period for all new, revised, and retired terms is proposed.

Effective Date for all New and Revised Definitions for NERC *Glossary* Terms

Where approval by an applicable governmental authority is required, the new and revised definitions shall become effective on the first day of the first calendar quarter that is twelve (12) months after the effective date of the applicable governmental authority’s order approving the definitions, or as otherwise provided for by the applicable governmental authority.

Where approval by an applicable governmental authority is not required, the new and revised definitions shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date the definitions are adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Retirement Date

Currently Effective Definitions

The currently effective definitions of the revised defined terms, as well as the defined terms Disturbance Control Standard, Net Interchange Schedule, Net Scheduled Interchange, and Reportable Disturbance shall be retired immediately prior to the effective date of the revised definitions in the particular jurisdiction in which the revised definitions are becoming effective.

Appendix: New, Revised, and Retired Terms

NERC Glossary Term	DT Proposed New or Revised REDLINE TO Currently Approved
<p>Actual Net Interchange – (NI_A)</p>	<p>The algebraic sum of actual megawatt transfers across all Tie Lines, including Pseudo-Ties, to and from all adjacent Balancing Authority Areas within the same Interconnection. Actual megawatt transfers on asynchronous DC tie lines that are directly connected to another Interconnection are excluded from Actual Net Interchange.</p>
<p>ACE Diversity Interchange (ADI)</p>	<p>A frequency neutral exchange program where multiple participating Balancing Authorities utilize it to achieve reductions in their generation control and Reporting ACE through</p>

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	offsets to either Actual Net Interchange or Scheduled Net Interchange ACE components to create an ACE value closer to zero for each participant.
Area Control Error - (ACE)	The instantaneous difference between an entity's Actual Net Interchange (NI _A) and Scheduled Net Interchange (NI _S), taking into account the effects of Frequency Bias, of correction for meter error, and of Inadvertent Interchange Management (I _{IM}) if operating in the I _{IM} mode. For compliance usage, refer to the term Reporting ACE.
Automatic Generation Control - (AGC)	Standards BAL-004-WECC-3 Terms

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	<ul style="list-style-type: none"> • Joint Control; • Regulating Reserve; • Tie Line Bias (<i>current and revised</i>)
<p>Automatic Time Error Correction – (ATEC)</p>	<p>The addition of a component , represented by the term I_{ATEC}, to the Reporting ACE equation for the Western Interconnection that modifies the control point for the purpose of continuously paying back Primary Inadvertent Interchange and to correct Time Error. Automatic Time Error Correction is only applicable in the Western Interconnection.</p> $I_{ATEC} = \frac{PII_{accum}^{on/off\ peak}}{(1-Y)*H}$

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	<p>The absolute value of I_{ATEC} shall not exceed L_{Max}.</p> <p>I_{ATEC} shall be zero when operating in any other AGC mode.</p> <ul style="list-style-type: none"> • L_{max} is the maximum value allowed for I_{ATEC} set by each BA between $0.2 * B_i$ and L_{10}; i.e. $0.2 * B_i \leq L_{max} \leq L_{10}$. • $L_{10} = 1.65 * \epsilon_{10} * \sqrt{(-10B_i)(-10B_s)}$ • ϵ_{10} is a constant derived from the targeted frequency bound. It is the targeted root-mean-square (RMS) value of ten-minute average Frequency Error based on frequency performance over a given year. The

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	<p>bound, ϵ_{10}, is the same for every Balancing Authority Area within an Interconnection.</p> <ul style="list-style-type: none"> • $Y = B_i/B_s$. • H = Number of hours used to pay back primary Inadvertent Interchange energy. The value of H is set to 3. • B_i = Frequency Bias Setting for the Balancing Authority Area (MW/0.1 Hz). • B_s = Sum of the Frequency Bias Settings for the Interconnection (MW/0.1 Hz). For entities with a variable Frequency Bias, the annual time weighted average

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	<p>FBS based on the one minute values used in BAL-001 when frequency is greater than 60.036Hz or less than 59.964 Hz.</p> <ul style="list-style-type: none"> • Primary Inadvertent Interchange (PII_{hourly}) is $(1-Y) * (I_{\text{actual}} - B_i * \Delta TE / 6) * BA_{\text{Island}}$ • BA_{Island} = Binary term: 1 indicates the BA is interconnected; 0 indicates the BA is entirely islanded and not interconnected. I_{actual} is the hourly Inadvertent Interchange for the last hour. • ΔTE is the hourly change in system Time Error as distributed by the

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	<p>Interconnection time monitor, where:</p> $\Delta TE = TE_{\text{end hour}} - TE_{\text{begin hour}} - TD_{\text{adj}} - t * (TE_{\text{offset}})$ <ul style="list-style-type: none"> ○ TD_{adj} is the Reliability Coordinator adjustment for differences with Interconnection time monitor control center clocks. ○ t is the number of minutes spent performing manual Time Error Correction that occurred during each hour. ○ TE_{offset} is 0.000 or +0.020 or -0.020. ○ PII_{accum} is the Balancing Authority Area's accumulated PII_{hourly} in MWh. An On-Peak and Off Peak accumulation

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	<p>accounting is required, where:</p> $PI_{accum}^{on/offpeak} = \text{last period's } PI_{accum}^{on/offpeak}$
Balancing Authority Area (BAA)	Added Acronym
Balancing Contingency Event – (BCE)	Standards BAL-002-3 Terms

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	<ul style="list-style-type: none"> • Contingency Reserve; • Most Severe Single Contingency; • Reportable Balancing Contingency Event
Control Performance Standard – (CPS)	Standards <ul style="list-style-type: none"> • BAL-001-2 • BAL-003-2 (Attachment A) Terms None
Disturbance	Standards <ul style="list-style-type: none"> • BAL-002-3 • EOP-004-4 • EOP-005-3 • MOD-026-1 • MOD-027-1

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	<ul style="list-style-type: none"> • MOD-033-2 • PRC-026-1 <p>Terms</p> <ul style="list-style-type: none"> • Disturbance Control Standard <i>(proposed for retirement)</i>; • Disturbance Monitoring Equipment
Disturbance Control Standard – (DCS)	<p>Standards BAL-002-3</p> <p>Terms None</p>
Dynamic Interchange Schedule or Dynamic Schedule	<p>Standards</p> <ul style="list-style-type: none"> • BAL-002-WECC-3 • INT-009-3 <p>Terms</p>

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	Scheduled Net Interchange (NIs) <i>(current and proposed)</i>
Frequency Bias Setting (FBS)	Standards <ul style="list-style-type: none"> • BAL-001-2 • BAL-003-2 Terms Reporting ACE <i>(current and proposed)</i>
Frequency Error	Standards: <ul style="list-style-type: none"> • BAL-001-2 • MOD-027-1 Term: <ul style="list-style-type: none"> • Control Performance Standard • Reporting ACE • Frequency

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	Regulation; <ul style="list-style-type: none"> • Reporting ACE (<i>current and proposed</i>); • Time Error Correction (<i>proposed</i>)
Inadvertent Interchange	Standards BAL-004-WECC-3 Terms <ul style="list-style-type: none"> • Automatic Time Error Correction (I_ATEC) (<i>current and proposed</i>); • Dynamic Transfer; • Primary Inadvertent Interchange (WECC)
Inadvertent Interchange	Standards None

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Management – (I_{IM})	Terms Reporting Ace <i>(proposed)</i>
Interchange Meter Error - (I_{ME})	Standards None Terms Reporting ACE <i>(current and proposed)</i>
Interchange Schedule	Standards MOD-028-2 Terms <ul style="list-style-type: none"> • Dynamic Interchange Schedule or Dynamic Schedule <i>(current and proposed);</i> • Net Interchange Schedule <i>(proposed for</i>

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	<p><i>retirement</i>);</p> <ul style="list-style-type: none"> • Net Scheduled Interchange (<i>proposed for retirement</i>); • Ramp Rate or Ramp (<i>see proposed revisions</i>); • Reliability Adjustment RFI; • Scheduling Entity; • Sink Balancing Authority; • Source Balancing Authority; • Tie Line Bias (<i>current and proposed</i>)

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Implemented Interchange	<p>Standards None</p> <p>Terms</p> <ul style="list-style-type: none"> • Reliability Adjustment; • Arranged Interchange
Net Interchange Schedule	<p>Standards None</p> <p>Terms None</p>
Net Scheduled Interchange	<p>Standards None</p> <p>Terms None</p>
Operating Reserve – Spinning	<p>Standards BAL-002-WECC-3</p> <p>Terms None</p>

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Operating Reserve – Supplemental	Standards BAL-002-WECC-3 Terms None
Overlap Regulation Service	Standards <ul style="list-style-type: none"> • BAL-001-2 • BAL-003-2 Terms None
Pre-Reporting Contingency Event ACE Value	Standards BAL-002-3 Terms None

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Pseudo-Tie	<p>Standards</p> <ul style="list-style-type: none"> • BAL-005-1 • BAL-002-WECC-3 • INT-009-3 <p>Terms Actual Net Interchange <i>(current and proposed)</i></p>
Ramp Rate or Ramp	<p>Standards None</p> <p>Terms Response Rate</p>
Regulation Service	<p>Standards</p> <ul style="list-style-type: none"> • BAL-001-2 • BAL-003-2 <p>Terms</p> <ul style="list-style-type: none"> • Overlap Regulation Service <i>(proposed);</i>

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	<ul style="list-style-type: none"> Supplemental Regulation Service (<i>proposed</i>)
Reporting Area Control Error – (Reporting ACE)	<p>Standards</p> <ul style="list-style-type: none"> BAL-001-2 BAL-002-3 BAL-005-1 <p>Terms</p> <ul style="list-style-type: none"> Automatic Generation Control; Interchange Meter Error (IME) (<i>current and proposed</i>); Pre-Reporting Contingency Event ACE Value; Pseudo-Tie (<i>current and proposed</i>)

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<p>Reportable Balancing Contingency Event – (RBCE)</p>	<p>Any Balancing Contingency Event occurring within a one-minute interval of an initial sudden decline in the responsible entity’s Reporting ACE that results in a loss of MW output less than or equal to its Most Severe Single Contingency (MSSC) , and greater than or equal to the lesser amount of:</p> <ul style="list-style-type: none"> (i) 80% of its MSSC. Prior to any given calendar quarter, the 80% threshold may be reduced by the responsible entity upon written notification to its Regional Entity, or (ii) the amount listed below for the applicable Interconnection.

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	<ul style="list-style-type: none"> ○ Eastern Interconnection: 900 MW ○ Western Interconnection: 500 MW ○ ERCOT: 800 MW ○ Quebec: 500 MW
Reportable Disturbance	<p>Standards CIP-002-5.1 <i>(outdated reference in G&TB)</i></p> <p>Terms None</p>
Reserve Sharing Group – (RSG)	<p>Standards</p> <ul style="list-style-type: none"> ● PRC-005-6 ● BAL-001-2 ● BAL-002-3 ● BAL-002-WECC-3 <p>Terms Reserve Sharing</p>

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	Group Reporting ACE
Reserve Sharing Group Reporting ACE	Standards BAL-001-2 Terms None
Scheduled Frequency	Standards <ul style="list-style-type: none"> • BAL-001-2 • MOD-027-1 Terms <ul style="list-style-type: none"> • Frequency Regulation; • Reporting ACE (<i>current and proposed</i>); • Time Error Correction (<i>proposed</i>)

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Scheduled Net Interchange - (NIs)	Standards None Terms Reporting ACE <i>(current and proposed)</i>
Supplemental Regulation Service	Standards None Terms None
Tie Line Bias (TLB)	Standards BAL-004-WECC-3 Terms Reporting ACE
Time Error (TE)	Standards None Terms <ul style="list-style-type: none"> • Automatic Time Error Correction <i>(current and</i>

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	<p><i>proposed</i>);</p> <ul style="list-style-type: none"> • Time Error Correction (<i>current and proposed</i>)
<p>Time Error Correction (TEC)</p>	<p>Standards BAL-004-WECC-3</p> <p>Terms</p> <ul style="list-style-type: none"> • Automatic Time Error Correction (<i>current and proposed</i>); • Scheduled Frequency (<i>proposed</i>)